

CONTENTS

1. The Leucocyte Count and the Schilling Differential—D. A. Campbell, M. D., Bridgewater, N. S. - - - - -	5
2. Pulmonary Tuberculosis in Childhood—John C. Wickwire, M.D., Liverpool, N. S. - -	12
3. The Sprained Ankle—W. A. Hewat, M.D., Lunenburg, N. S. - - - - -	17
4. Apoplexy—C. B. Cameron, M.D., Petite Riviere, N. S. - - - - -	20
EDITORIALS:	
The General Practitioner in Modern Medicine—F. R. Davis, M.D., Bridgewater, N. S.	23
“Ring out the old, ring in the new”—N. H. Gosse, Halifax, N. S. - - - - -	24
Sir Joseph Chisholm—N. H. Gosse, Halifax, N. S. - - - - -	25
CASE REPORTS:	
A sequence of cardiovascular accidents—D. W. N. Zwicker, M.D., Chester, N. S. - -	26
Haemorrhage in new born child—A. C. McLeod, Caledonia, N. S. - - - - -	27
A case of missed abortion—A. C. McLeod, Caledonia, N. S. - - - - -	27
Some uses for apomorphine—G. A. Barss, M.D., Rose Bay, N. S. - - - - -	27
Unusual car accident—G. A. Barss, Rose Bay, N. S. - - - - -	28
Ruptured spleen with delayed symptoms—Samuel Marcus, M.D., Bridgewater, N. S.	28
Treatment of Burns—Angus J. Macdonald, M.D., New Germany, N. S. - - - - -	30
Status asthmaticus—Angus J. Macdonald, New Germany, N. S. - - - - -	31
NOTICE RE DRAFTS - - - - -	4
DEPARTMENT PUBLIC HEALTH - - - - -	32
LABORATORY - - - - -	35
OBITUARY - - - - -	39
PERSONAL INTEREST NOTES - - - - -	40

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ANNUAL DUES

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The Leucocyte Count and the Schilling Differential

D. A. CAMPBELL, Bridgewater, N. S.

IN normal adults the total leucocyte counts vary from 4,000 to 10,000 per cu.mm., with a few as high as 12,000. Each person has a normal count of his own which varies within a smaller range, the maximum of which does not exceed twice the minimum. This knowledge enables one to interpret repeated leucocyte counts with more discrimination than a single count. The highest leucocyte counts usually occur from two to four in the afternoons. In persons at rest in bed and on a light diet there is a basal leucocyte count, the upper limit of which may be taken as 9,000. Exercise or massage is usually followed by a temporary leucocytosis, which may reach 20,000 per cu.mm. Physiological increases in the leucocytes up to 15,000 occur in the later months of pregnancy, and the first few days of the puerperium.

The normal range of leucocytes in infants and children is high. By five years of age cell counts resembling those of the normal adult are reached. A child develops a high leucocyte count more readily than does an adult, and it is therefore of less significance than in adults.

Although a leucocytosis may be due to an increase in any form of cell it is generally due to an increase in the polymorphonuclear neutrophils.

The reaction of leucocytes is somewhat specific for certain types of infection, but the tissue involved also plays a part. Infections due to cocci of any variety give rise to a leucocytosis by causing an increase in the polymorphonuclears. Apart from the leukemias the pneumococcus produces the greatest leucocytosis. The degree of leucocytosis also depends on the reaction of the individual to a severe infection. If an extremely toxic infection occurs, the leucoblastic areas in the bone marrow may fail to extrude leucocytes even in normal numbers.

Pure bacillary infections, especially typhoid, para-typhoid, influenza and tuberculosis, rarely produce an increase in the total leucocytes. In diphtheria there is usually an associated streptococcal infection which produces a leucocytosis. Infection due to colon bacillus may by itself produce a leucocytosis, although the streptococcus is frequently present. In pertussis, which is due to Bordet's bacillus, there may be a total count up to 30,000, of which 80% may be lymphocytes.

The tissue involved influences the character of the leucocytic picture more than does the type of organism causing the infection. Diseases affecting chiefly the lymphatic system, such as tuberculosis and typhoid fever, are usually associated with a low leucocyte count, and a large percentage of lymphocytes, whereas, if these infections spread to involve the bones, the meninges, pleura or peritoneum, there may be a polymorphonuclear increase.

A small amount of pus under pressure, such as in a mastoiditis or appendicitis will produce a much higher leucocyte count than a large suppuration that is draining.

Haemorrhage into a serious cavity causes a prompt and marked rise in leucocytes. This increase starts one or two hours after the haemorrhage and reaches its maximum, which is one and one half to three times normal, in six to ten hours, then returns to normal four days after the haemorrhage has ceased.

About one half the patients suffering from malignancy have an increase in the leucocyte count. This may be due to secondary infection, or to the absorption of necrotic malignant tissue. Ulcerating carcinomas of the skin do not produce a leucocytosis, but many internal tumors, especially sarcomas and gastro-intestinal carcinomas give rise to counts up to 25,000. A steadily increasing count in a malignant condition indicates rapid growth or metastases.

A leucocytosis is any count over 10,000. There is usually pus formation as the leucocyte count approaches 20,000. The degree of leucocytosis indicates the vigor of the resistance, and, in a general way, the severity of the infection.

The following toxic conditions may produce a leucocytosis,—eclampsia, uremia, acidosis, intestinal obstruction, burns, and occasionally rickets. Even toxic food or excess of alcoholic beverage may cause a temporary increase in the leucocytes. These toxic states should be ruled out before regarding a leucocytosis as due to a pyogenic infection.

A count of 25,000 or over with little or no fever suggests leukemia rather than sepsis. The higher the count the more certain is the diagnosis of leukemia. The examination of the stained blood smear will settle the diagnosis.

As one of the non-bacterial causes of a leucocytosis we should not forget coronary thrombosis, which may give rise to counts up to 20,000.

In disease a count below 5,000 is considered a leucopenia, and it occurs in the following conditions:

- (1) Very severe infections which when less severe usually cause a leucocytosis, such as pneumonia, peritonitis, cellulitis, puerperal sepsis, etc.
- (2) Typhoid, para typhoid, and undulant fever. If complications such perforation, phlebitis, pneumonia or osteomyelitis develop the polymorphonuclears increase producing a leucocytosis.
- (3) Influenza. A moderate leucocytosis may develop in the later stages, due to secondary invasion of streptococci, or pneumococci.
- (4) Tuberculosis, except in the late stages of pulmonary conditions invasion of the meninges, peritoneum, pleura, or bones.
- (5) Measles, mumps, mal-nutrition, severe anemias.
- (6) Poisoning by lead, benzol, X-ray or radium.
- (7) Malaria, except during the rigor.
- (8) Agranuloacytic angina.

In the last few years we find appearing in our text books and medical journals a different type of differential count. The most popular classification of the white blood cells is that of Victor Schilling. The technique described by this author can be applied in the course of an ordinary differential count by observation of the following forms of leucocytes: Basophiles 0-1%; Eosinophiles, 2-4%; myelocytes 5%; Juvenile cells 0% (these are metamyelocytes, having many of the characteristics of myelocytes, but with indented or bean shaped nuclei). Stabs or band forms 3-5% (these are single-lobed neutrophils). Neutrophils with more than one lobe in the nucleus, segmented

cells, constituting normally 50 to 65%. Lymphocytes, 20 to 35%, Monocytes 4 to 8%. A differential count with this classification constitutes a Schilling "haemogram."

The significant dividing line in the schilling count lies in the neutrophile groups between the "stab" or band cells and the segmented nuclear cells.

In the normal blood smear there are no myelocytes or juvenile forms, and only 3 to 5% of neutrophiles with single-lobed nuclei. A "shift to the left" is seen when the number increases in the percentage to the left of the dividing line.

The neutrophile which is unsegmented differs from the segmented polymorphonuclear only in that it has a solid band form of nucleus, which is usually S or U shaped.

When definite constrictions are seen in the nuclei it is difficult to differentiate this "stab" or band cell from the segmented form. If there is anything more than a narrow filament or chromatin nuclear material, the cell must be classified as nonsegmented. These unsegmented cells are the group which Schilling sub-divides into (1) Juveniles which have a very plump nucleus, (2) the "stab" or band form of nucleus which is more mature than the juvenile form but younger than the type with the segmented nucleus. Normally about 4% of these cells are present. The percentage of these young cells increases with the severity of the infection. To one not in constant practice it is difficult to distinguish the juvenile from the stab, or band form, but one can obtain good results by grouping them together, and calling them all bands. This is the method described in Nicholson's Laboratory Medicine. Other modified Schilling methods classify the neutrophiles as non-segmented and segmented, or non filament or filament cells. The important part, regardless of what classification is used, lies in the neutrophile groups and the percentage of its immature forms.

A "shift to the left," an increase in immature forms with a high total leucocyte count occurs in pneumonia, acute sepsis, acute appendicitis, and so forth. In these conditions myelocytes may appear and the juvenile and stab forms are increased. In such conditions valuable information may be obtained by watching the trend of the count at four or eight hourly intervals, and it is a much more reliable guide to the progress of the case than the temperature chart. In the very early stages of an infection the mature segmented neutrophiles are the first to come out from the bone marrow and may account for a leucocytosis of 16,000 with a low ratio of young forms. The ratio of the young forms, however, soon mounts, so that they are usually increased before a blood examination is undertaken.

As an example of the Schilling "haemogram" we can consider the following case of septic arthritis of the knee joint. The blood count gave a leucocytosis of 12,000: Lymphocytes 19%; Monocytes 14%; Myelocytes Nil; Juveniles 19%; Band Forms, 17%; Segmented Polymorphs, 31%; Eosinophiles, Nil; Basophiles, Nil. The features of this picture are a leucocytosis of moderate degree, not sufficient by itself to justify a diagnosis of suppuration, absence of eosinophiles, which is very characteristic of active infection, and monocytic increase, which is common but not invariable in such circumstances. The leucocytes show a very definite increase in the number of immature forms, the band forms are increased from the normal of 4 to 17% and the young forms which normally are absent from the peripheral blood number 19 per cent. There is thus an obvious emigration of young neutrophilic cells from the marrow. This is termed a "shift to the left".

The findings in a well marked case of suppuration, pelvic abscess, will serve to make clear the condition of affairs:

Leucocytes	20,000	
Lymphocytes	5%	
Monocytes	1%	
Myelocytes	Nil	
Young Forms	19%	} 94%
Band Forms	14%	
Segmented polys	61%	

Here we see a well marked leucocytosis, a great increase of the neutrophiles to 94% and the absence of eosinophiles. This alone would indicate the presence of infection, but when the large number of young forms of neutrophiles are considered there can be no doubt of the diagnosis.

A case of acute appendicitis on the third day of his illness gave the following blood picture:

Leucocytes	20,000	
Lymphocytes	8%	
Monocytes	5%	
Young Forms	2%	} 87%
Band Forms	44%	
Segmented polys	41%	

Here the presence of pus was indicated by the high leucocytosis, the absence of eosinophiles, the neutrophilia of 87% (over 85% suggests suppuration) and the great increase of the immature forms.

In the mildest of infective conditions, when there is no definite leucocytosis this type of differential count is of greater help than the old method, which does not consider the percentage of the immature neutrophiles. A case of mild catarrhal inflammation of the appendix with slight discomfort in the right iliac fossa showed the following blood picture:

Leucocytes	8,000	
Lymphocytes	16%	
Monocytes	8%	
Band Forms	12%	} 75%
Segmented polys	63%	
Eosinophiles	1%	

Here there is no definite leucocytosis. The neutrophilia is very slight, and the eosinophiles are but little reduced. The main difference in the picture from normal lies in the presence of 12% of band forms: that is, there is a slight "shift to the left". Taken together with the clinical history there could be no doubt of the presence of a mild infection.

In a recent report on the value of the Schilling Count in the diagnosis of acute appendicitis by Eisenberg and Nemens (New York) a series of 2,143 cases are considered. They state that in the so-called incomplete clinical picture of acute appendicitis and other infections, the band cell count is of greater importance pointing to any of these infections, when considered together with the clinical picture and taking the place of the missing symptoms; taken without the clinical picture the high band count points non-specifically and without localizing it to a serious infection, probably suppurative, if the

band count is over 15 per cent., and almost invariably so if over 20. They have seen a typical infection giving a typical blood picture days before becoming typical clinically.

A case of deep sepsis of the scalp showed the following:

Leucocytes	17,100
Lymphocytes	1%
Monocytes	Nil
Myelocytes	5%
Young Forms	19%
Band Forms	54%
Segmented Polys	21%

The first day postoperative:

Leucocytes	7,500
Lymphocytes	13%
Monocytes	2%
Myelocytes	Nil
Young Forms	10%
Band Forms	54%
Segmented Polys	21%

The third day postoperative:

Leucocytes	7,500
Lymphocytes	16%
Monocytes	Nil
Young Forms	1%
Band Forms	19%
Segmented Polys	64%

The presence of myelocytes with low lymphocyte count denoted a severe infection with poor resistance. A prompt shift to the right and increase of lymphocytes followed drainage.

The picture in Bacillary Infections, the Typhoids, and Influenza:

MILD

Leucocytes	5,700
Lymphocytes	33%
Monocytes	12%
Myelocytes	0
Young Forms	1%
Band Forms	10%
Segmented Polys	42%
Eosinophiles	2%

SEVERE

Leucocytes	3,000
Lymphocytes	40%
Monocytes	23%
Myelocytes	2%
Young Forms	4%
Band Forms	14%
Segmented Polys	17%

Here we find the leucocytes at the low normal or markedly below, a relative lymphocytosis. Toxic changes in the neutrophiles are always present, (these are darker staining granules in the nuclei) as is also a well marked "shift to the left". The eosinophiles are always reduced in number and may disappear completely. It can be fairly definitely stated that the degree of eosinopenia runs parallel with the severity of the disease.

The prognostic value of the differential count which considers the percentages of the young and mature types of cells is now well known. Serial examinations, so that the trend of the count can be noted are best, and the Schilling method, with division of the immature neutrophiles into two groups, is to be preferred to any of the modified one group methods. When the method first came into use too much stress was paid to a single observation, so that if a count gave a ratio of two immature to one mature form, the case was considered fatal. Recovery, however, has been reported in cases with a ratio of even three young forms to one of the mature. The important thing, therefore, to watch, both for diagnostic and prognostic purposes, is the persistence of the young forms, whether they are increasing or decreasing.

An exception to the general rule occurs in Agranulocytosis, a rare condition, (we had a fatal case here in 1931) in which the blood shows marked leucopenia, decrease in the number of polymorphoneuclears amounting at times to almost complete disappearance of all granular cells. Although there is a marked leucopenia the relative percentage of the lymphocytes is markedly increased. There is usually a septic sore throat, fever and severe prostration, so that the first cases were called Agranulocytic Angina. In these cases the appearance of even eight young forms to one mature is often the earliest sign of recovery. It is now thought that Agranulocytosis represents not a real clinical entity, but rather is the sign of a very severe infection that has also affected the bone marrow. The prognosis is always grave, although recovery is reported in some cases.

It is, of course, not possible to formulate rigid prognostic indications, but the following suggestions as noted in "Recent Advances in Haematology" by A. Piney, are valuable in watching the trend of the count:

- (1) A slight degree of neutrophilia with distinct nuclear "shift to the left" and persistence in the circulation of eosinophiles may be a physiological condition. In the later stages of pregnancy we get changes of this type, but, of course, there are no toxic granules in the neutrophiles. A blood picture similar to this may occur in mild infections, and if the shift does not become more pronounced is of excellent prognostic significance.
- (2) Slight or definite leucocytosis with nuclear shift of moderate degree (not more than 4 young forms and 12 band forms) decrease of eosinophiles and slight diminution of lymphocytes comprises a picture from which no clear prognostic inferences can be drawn. It is, however, indicative of the need of further examinations at short intervals; but there could be no doubt as to the existence of an infection.
- (3) High leucocytosis with great shift to the left, tending to progress in the same direction, with great decrease or even disappearance of eosinophiles and reduction of lymphocytes, is a grave condition which may, however, still be recoverable. It is particularly in

- cases in which the percentage of young forms exceeds that of band forms that the outlook is very grave.
- (4) The persistence of a progressive fall of the total number of leucocytes, with an extreme and increasing shift to the left, total absence of eosinophiles, and well marked lymphopenia, are characteristics of moribund cases. It may be stated, as a general rule, that progressive eosinopenia with rising leucocytosis, is indicative of progressing infection, to which some reaction is occurring; whereas progressive eosinopenia with a falling leucocyte count indicates the presence of an infection which has overpowered the defensive mechanisms.
 - (5) Re-appearance of eosinophiles and fall of neutrophiles in cases in which the former have been absent and the latter excessive, is indicative of recovery, and is always accompanied by a progressive movement of the nuclear index towards normal.
 - (6) The development of lymphocytopenia during the course of a persistent infection is always of bad significance.
 - (7) A sudden fall of the number of lymphocytes, in association with progressive neutrophilia, always indicates an extension of the inflammatory process; the prognosis is definitely bad in those cases in which lymphocytopenia occurs during a time of progressive decrease of the total leucocytes and shift of the neutrophiles to the left.
 - (8) Lymphocytosis following neutrophilia and accompanied by eosinophilia with progressive passage of neutrophiles towards normal, both in number and index, is indicative of recovery.

How Far Should State Health Departments Go?

Baby's Proper Feeding the Doctor's Problem. One of the most frequent inquiries received by the State Department of Health is that concerning an infant's diet. It is, of course, impossible for the Department to advise or give suggestions regarding a suitable diet for any infant. It apparently is not generally realized by the laity, that food requirements vary for every infant. One infant may thrive on a given food while the next will not tolerate it. Consideration must be given to the fundamental requirements of each infant such as the protein, fat, carbohydrate, water, mineral and vitamin requirements. So far as is known, breast milk is the only universally suitable food for infants. If a baby is deprived of this he should be taken to the family physician and placed on a proper feeding. It is only after a thorough history has been taken and a thorough physical examination has been made that the proper food can be advised for any infant. It is quite obvious that such service is out of the realm of the State Department of Health.

The Department, however, has literature on infant care that is available on request. The Children's Bureau at Washington also publishes some excellent pamphlets on infant and child care which should be read by every mother who wishes to give her child the best of care and training—From Ohio Health News, Nov., 1934.

Pulmonary Tuberculosis in Childhood

JOHN C. WICKWIRE, M. D., Liverpool, N. S.

THERE are two distinct types of pulmonary tuberculosis, the adult and the childhood. The former occurs chiefly in the adult but occasionally in children; the latter usually in children, less frequently in adults.

Adult tuberculosis usually begins in the upper third of the lung, with little involvement of the tracheobronchial glands. It is due to continued infection or reinfection of the tubercle bacilli, frequently a sequela of the childhood type.

In childhood tuberculosis the primary focus of infection may be located anywhere within the lung substance, very often originating next the pleura. There is always some involvement of the tracheobronchial *nodes*. The parenchymatous lesion varies from a minute, invisible focus to the infiltration of one whole lobe or lobes. When the lesion is small it may only be in the tracheobronchial glands that the disease reveals itself; and, as these are silent areas, we can at once recognize that our problem is a difficult one.

Much valuable information may be obtained from a careful family history. Dr. David A. Stewart writes; "The fountain pen is mightier than the stethoscope." The tuberculous child has recently been in contact with an infected person, animal or food supply, and has, in all probability, suffered repeated exposures. In the majority of cases, on careful inquiry, the source can be found. Frequently the asthmatic grandmother, the father with the history of pleurisy, will on X-ray examination reveal active disease. The younger the child, the easier it is to find the contact within the home.

From personal history we may learn of pleurisy with effusion, erythema nodosum, tuberculous glands or night sweats; though on the contrary the child may appear to be in perfect health. The mother may have noticed that for some time he has preferred the less strenuous forms of play, and frequently in the afternoons complained of being tired. There may or may not have been loss of weight. A cough is a variable factor and may be absent even in advanced cases. The temperature in children is very unstable and before reliable information can be obtained, it must be recorded over a period of time. A p.m. elevation of one or two degrees is significant; yet advanced cases may be afebrile.

On physical examination of the chest the findings will, in practically every case, be negative. "By physical examination alone the most skilful examiner cannot make a positive diagnosis of tuberculosis in children; neither can he exclude it as a possibility—no matter what the appearance of the child." (Chadwick).

Examination of the sputum or swabs from the throat, also gastric contents may occasionally show tubercle bacilli.

The tuberculin test is of inestimable value, bearing in mind that the negative reactor is probably non-tuberculous. With a positive reaction, the child has been infected with the bacillus; but the diagnosis of tuberculous disease, particularly of the childhood type, is entirely within the sphere

of the Roentgenologist. Many cases with a positive tuberculin test together with a positive contact history will be found to have active disease of the chest. Personally I tuberculin test all children within a household in which I discover tuberculosis.

It is here that the X-ray comes to our assistance for without it the medical practitioner is not justified in excluding childhood tuberculosis. Authorities recommend X-ray of all those who have positive tuberculin tests, also those with a positive contact history. In fact the Utopia is to have all children X-rayed periodically.

Once diagnosed, the first essential treatment is to find and to break the contact, which is usually an open case of adult tuberculosis. Nature has endowed each child with a certain amount of resistance to tuberculosis, but, as is true with practically any disease, it is a question of dosage. Unless the infecting agent is removed the life and happiness of such children is hanging in the balance. Endeavouring to treat the disease without removing the source is futile.

General tuberculosis care should be given—rest in bed for a time, plenty of fresh air and good food. Periodic X-ray examination should be made to determine the degree of healing.

“Now that we know better what tuberculosis of childhood is, our ideas of prognosis have changed. It is true that the adult type of tuberculosis in a child has a very bad outlook but childhood tuberculosis in a child may have a very good outlook.” (Stewart). Barring reinfection he will usually progress steadily to a satisfactory healing; but it must be remembered that his resistance has been permanently impaired and every precaution to avoid reinfection should be taken until advanced beyond the age of adolescence; for it is during this latter formative period that many cases of adult tuberculosis develop.

The writer is a strong proponent of the belief that a proper diagnosis and careful treatment along generally accepted lines of childhood tuberculosis will, eventually, result in the near elimination of tuberculosis as a medical problem. It is conceivable that a proper control of this dreaded disease during the early years of childhood will mean not only better health to children and consequently a greater contribution to society, but will perhaps delete from medical records many future cases of what is now called adult tuberculosis.

CASES

Case I. July 9, 1934. Boy, age 11 years.

Complaints. Malaise. Painful swellings on shins.

Family History: Grandfather and aunt suffered from asthma. Playmate 6 years ago suffered from chronic discharging sores on the legs, later treated in hospital for this condition. A young lady, who was found to have open tuberculosis, was a frequent visitor during the past three years.

Personal History: Child has always been somewhat underweight. Whooping cough five years ago, mumps two years ago. The mother proffers the information that the child has had night sweats during the past 2-3 years.

Present Condition: During the past 3-4 weeks the mother has noticed that the child has been lackadaisical. Three days ago hot, red painful swellings appeared on the shins.

Examination: Temperature 101. Pulse 110. Weight 62. Swellings on the legs corresponded to erythema nodosum. Tuberculin test Positive.

Chest: Physical—Negative.

X-ray:—Left—Accentuated root shadows.

Right—Enlarged glands in the hilus with infiltration of the second interspace.

Diagnosis: Pulmonary tuberculosis. Childhood type.

Treatment: Erythema was treated with sodium salicylate mixture and rest. For the tuberculous condition child was kept at rest in bed, with abundance of fresh air, good food, tonics, including cod liver oil.

Progress: The improvement in the general condition of the child was spectacular. He gained 16 lbs. in four months. Recent X-ray shows resolution in the parenchyma together with a shrinking of the hilar glands.

Two other children in the family were tuberculin tested and found to be negative.

February, 1934.

Case II. Girl, age 13 years.

Complaints: (1) Malaise (2) Painful swellings on shins. (3) Acne on face.

Family History: Good.

Personal History: Several convulsions when an infant. Whooping cough age of 3 years. Acne during past year. Always relatively tall and slight of stature.

Present Condition: In February—red, hot, swollen, tender areas appeared on the shins.

Examination: Temperature 101. Pulse 88. Swellings on legs correspond to Erythema Nodosum. Acne on the face. Haemoglobin 70%. Tuberculin test Positive.

Chest: Physical—No apparent pathology.

In view of the above, X-ray of the chest was advised, with findings as follows:

“Right—Accentuated root shadows, with infiltration next the inner end of the third rib.

Left—Irregular dense shadows in the left hilus, with evidence of early calcification.”

Diagnosis: Childhood tuberculosis.

Treatment: Sodium salicylate mixture for the erythema nodosum. Bed rest from February to May. Good food, fresh air, tonics. In June allowed up for short intervals morning and afternoon. During the latter months of the Summer she was allowed short walks, but observing strict rest periods. At present a tutor is in the home replacing school attendance.

Progress: With treatment the erythema nodosum cleared up in due course.

The temperature for nine weeks showed a slight p.m. elevation ranging from $\frac{1}{2}$ to 1 degree. The patient gained fifteen pounds in the first three months of treatment. Acne condition improved. Energy returned.

X-ray on September 1st, 1934 showed some resolution of parenchymatous infiltration, and the left hilus slightly smaller, with evidence of calcification.

January, 1931.

Case III. Girl, age 8 years.

Complaints: Vomiting attacks.

Family History: Father had pleurisy 6 years ago. Recent X-ray shows tuberculous disease of the left apex. Grandfather, living in the same home, died from tuberculosis in 1930.

Personal History: Measles when a baby. Whooping cough when 5 years old. Tonsillectomy 6 years of age.

Present Condition: During the past few years patient has suffered several vomiting attacks, otherwise has apparently been well.

Examination: Weight 50 lbs. (2 lbs. under average weight).

Note: During an acute attack I found symptoms of pyelitis, viz.; high temperature rapid pulse, trace of albumin and pus in the urine. This apparently accounted for the vomiting. In the course of general examination I found chest signs as follows:

Right—On inspection there is some flattening in the upper third; percussion note slightly impaired over the same area. On coughing numerous coarse rales from apex to 3 I.S. and 5 V.S. V.R. increased to 3 I.S.

Left—No apparent pathology on physical examination.

X-ray Report: April, 1931. "Diffuse mottling of left upper lobe, with old lesion at right apex and fibrotic band extending to periphery at level of second rib. The appearance of left upper lobe suggests active disease."

Diagnosis: Pyelitis. Adult tuberculosis.

Treatment: Complete bed-rest from February to April in sun-porch. Throughout Summer allowed to sit in chair for short period a.m. and p.m. In winter 1932 allowed 10 minutes exercise, increased 5 minutes per week. This was continued to spring. Returned to school in September of 1932.

The latest X-ray report, June 5th, 1934 is as follows: "There is evidence of marked fibrosis in the right upper lobe, with slight fibrotic changes in the left side. There is no definite evidence of present active disease, although a small area of mottling in the second interspace does not seem completely organized."

July 6th, 1934.

Case IV. Boy, age 6 years.

Complaints: (1) Pain in the right side. (2) Cough.

Family History: Uncle and grandmother suffered from asthma.

Personal History: Frequent attacks of bronchitis, with lingering cough, most troublesome at night. Tonsillectomy 1933.

Present Condition: Bronchitis for a few days, followed by pain in the right side of the chest.

Examination: Temperature, 104. Pulse, 120. Respirations, 42.

Chest:

Physical. Right base: Diminished breath sounds of tubular quality.

Few fine rales, V.R. increased, percussion note dull over this area.

Left base: Rales.

During the next two weeks the breath sounds gradually returned to normal though coarse bubbling rales persisted in the right lung from the 6 V.S. to base and in the left lung only at the base. The temperature dropped from the previous high reading to approximately 100, where it remained until September. Since then it rises in the afternoon to 99.5. The cough gradually lessened; at present it gives little trouble.

Tuberculin Test: Positive.

Sputum: Negative for tubercule bacilli.

Diagnosis: Broncho-pneumonia with pleurisy.

Treatment: The usual treatment was given during the acute attack. Owing to persistence of symptoms and signs the child was given prolonged bed-rest of 9 weeks, good food, fresh air, and Scott's Emulsion. Postural drainage was employed for 20 minutes twice daily. During the following 2 months he was allowed up for short intervals a.m. and p.m. Since then he has been observing rest periods.

Due to the chronicity of the case he was X-rayed with the following findings:

"Diffuse hazziness at the right base. Enlargement of the hilus, right and left."

This child was seen by three chest specialists, who all agreed that this was a case of unresolved pneumonia—probably non-tuberculous.

We regret that our President, Dr. Dan McNeil of Glace Bay found it necessary to spend a few days at the Halifax Infirmary last week.

The Secretary has received a letter from Mrs. I. W. Baker, Berwick, N. S. concerning a vacancy in general practice due to the death of Dr. Farrell at Holden, Alberta. Further information may be had either from Mrs. Baker or from Mrs. Farrell, Holden, Alberta.

The Sprained Ankle

W. A. HEWAT, M.D., Lunenburg, N. S.

IN the ensuing article an attempt is made to correlate the views on ligamentous injuries, prevalent in current medical literature. A further attempt is made to apply these views to the injury resulting from acute inversion of the ankle-joint while the foot is bearing all or part of the body weight.

This injury may be severe at the outset, in which case medical aid is sought to relieve the pain and disability. It may, on the other hand, result from a series of minor accidents, none of which in the mind of the patient is sufficient reason for seeking advice at the time. It is only after some weeks or months that these cases come under our supervision.

In these latter cases although there may be a fairly clear cut history of trauma the question of metabolic disorders, rheumatic conditions in other parts of the body, and focal infection must be investigated.

A brief summary of the ligamentous attachments and their condition when stretched or torn may be helpful in getting a mental picture of the sprained ankle.

The capsule surrounds the joint being attached above to the borders of the articular surfaces of the tibia and fibula and below to the astragalus around its trochlear articular surface. The capsule is reinforced by a number of ligaments. On the internal aspect is the strong deltoid ligament. Anteriorly and posteriorly support is given by thin bands of areolar tissue making relatively weak ligaments and while the external aspect of the joint is supported by the strong anterior and posterior astragulo-fibular ligaments between these two ligaments the capsule is unsupported.

From this brief account it will be seen that inversion is limited by the joint capsule, by two ligaments placed at a mechanical disadvantage due to the fact that their long axis is placed obliquely to the line of force when the ankle is inverted, and by the action of the muscles.

The muscles may be caught off guard or the force may be sufficient to overcome them thereby damaging the muscle or tendon fibres. The importance of recognizing the degree of muscle damage is that if neglected the resultant loss of tone deprives the ankle-joint and external portion of the longitudinal arch of much of its support and aggravates any tendency for them to be left in a weakened condition.

The swelling situated below and in front of the external malleolus is from two sources. (a) A traumatic synovitis of the ankle joint. The increased fluid resulting in distension of the capsule where it is least well supported, that is between the anterior and posterior astragulo-fibular ligaments. (b) The ligaments themselves being damaged swell up due to effusion of blood and lymph between their fibres and add to the general swelling of the part.

In neglected cases after a varying period the swelling subsides leaving a thickened capsule and ligaments. The blood and lymph have now organized, fibrous tissue is laid down between the elastic areolar bundles, and the extra-

articular adhesions so formed limit the movement of the joint by matting together the folds of the capsule and the ligaments.

The clinical features of the acute type are too well known to merit comment.

The outstanding feature of the chronic type is limitation of movement. This limitation is due in part to the changes in capsule and ligaments described above and in part to muscle spasm which guards the joint against movement.

An interesting feature of these late cases is that whereas in the acute stage the patient, if he walks at all, walks on the inner border of the foot, in the chronic stage he often walks on the outer border. In these latter cases if you stand behind the patient the tense peroneus longus and brevis are easily seen. The probable explanation of the change in attitude is that it is easier for these muscles to brace the joint when the foot is slightly inverted.

There is nothing particularly characteristic about the pain and tenderness. The muscles guarding the joint being constantly tense, naturally tire more quickly than those which have alternate periods of activity and relaxation so the patient will complain that, even when walking on a level surface, the leg gives out quickly and that some of the muscles are stiff and sore.

"A sprain is worse than a break." This statement so often made would seem to be as often borne out when considering the end results of the two conditions. As more actual trauma is occasioned by a fracture than by a sprain then it must be assumed that the more prolonged and efficient treatment of the fracture cases is the key to the better results.

The immediate application of a compression bandage will usually result in the rapid absorption of most of the effusion and with that absorption some return of function. At this point too often the patient is content. Keeping in mind, however, the condition of the areolar fibres it is obvious that no strain should be put on the ankle. Nor should the joint be kept at absolute rest as in such condition it loses the beneficent effect of motion on circulation through muscular and areolar tissues. Thus in the ideal case passive movement should be continued until muscles and ligaments are restored to their normal tone, size, and elasticity, and the joint to its full range of movement. Then exercises should be instituted guarding the joint by adhesive strapping. The greatest difficulty is in getting a patient to adhere faithfully to any scheme of treatment.

When it is impossible to carry out a plan which involves a patient keeping off the foot more than a day or two, the ankle should be carefully strapped. In the case of a man whose work takes him over rough ground, a plaster cast on which he can walk applied on the second or third day and left for five days then adhesive applied followed by exercises, gives good results.

The treatment of a case which presents a thickened tender area below and in front of the external malleolus is a test of patience as much as skill. Organization with fibrous adhesions has occurred matting together the capsule, ligaments, and the loose areolar tissue into one inelastic sensitive mass, the muscles are spastic guarding the joint and the range of movement, if the joint is limited and painful especially on inversion.

The first essential is to overcome the muscle spasm by removing the strain on the joint and applying adequate support in the form of adhesive or plaster of paris.

When muscular spasm is overcome begin manipulating the joint by making traction on the ankle and gently putting the joint through its various movements thus stretching the extra articular adhesions and freeing the cap-

sule and ligaments. In the interval between manipulations the foot should be periodically soaked in a warm foot bath and active and passive movements carried out without weight bearing. Gentle massage will further aid the circulation about the joint and separate the adhesions.

Generally the more chronic types will fall into the hands of the orthopedic surgeon but as General Practitioners we usually see them first and should have a concise mental picture of the condition and a scheme for its treatment.

End of Infantile Paralysis in Sight, Scientists State.

Pittsburgh.—The possible end of infantile paralysis was forecast at the American Association for the advancement of science to-day.

The results of two different vaccines, one discovered in Philadelphia, the other in New York, gave this promise. Both are speedy, one showing immunizing effects in a little over three days, and both within a week.

This indicates that both may possess the power to stop epidemic outbreaks before they become serious.

The Philadelphia vaccine results on 25 children were reported by John A. Kolmer, M.D., of Temple University, none had infantile paralysis, but they were poor subjects for the vaccine tests because most of them were convalescing from other diseases.

Nevertheless their blood after vaccination became so strongly resistant that it successfully neutralized human infantile paralysis virus from the 1934 California epidemic. This means that in a test tube the children's blood took all the virulence out of the agency that caused the infantile paralysis.

Experiments with animals indicate that this neutralization test is "valid," a sign of real immunity gained from vaccination.

Dr. Kolmer said that 15 of the children were without this protective substance before vaccination. Eleven of them showed large amount of antibody afterward, ten already had the "intiviral" substance in their blood but these showed "considerable increase" in the protective substance after vaccination.

None of the children showed ill effects of vaccination. The ages ranged from eight months to 15 years. Vaccination of a few adults has showed that they react like the children, with increase of immunizing antibodies.

"It is believed," Dr. Kolmer said, "that the vaccine is now ready for vaccination of human beings and especially children against poliomyelitis and particularly during epidemics."

He said it is not known how long immunity will last after this vaccine, but that it has lasted for more than a year in vaccinated monkeys.

The vaccine made of spinal cords of monkeys with infantile paralysis. A solution containing four per cent. of the cord is treated with one per cent. sodium ricin oleate.—*Sydney Post Record*, Dec. 26, 1934.

APOPLEXY

C. B. CAMERON, M.D., Petite Riviere, N. S.

APOPLEXY has a death rate of from one in three to one in seven, (Osler). If recovery comes, a repetition of the attack is to be expected within a period of months, the gravity depending on the severity of the lesion.

It is so hard to do nothing, or to decide whether we have a haemorrhage, or an occlusion of a cerebral artery, that I have long dreaded these cases, and have resorted to a routine treatment for surgical cerebral congestion. (Neurosurgery, Sharp.).

Absolute rest; high enema of 6 to 8 oz. Mag. Sulph. with 1 oz. glycerine, and water to dissolve. This is given slowly with a catheter on the end of the fountain syringe. In from a half to an hour a huge watery stool is passed without straining, and I have seen many return to consciousness within the space of half an hour. With the return of consciousness we get increased restlessness requiring a sedative; chloroform morphia or chloral and bromide being used as required. Next we have irritability, and restlessness, and an increase in temperature, moderate in those who will likely recover, very high, or low in the fatal cases.

The next problem is keeping things quiet, and not destroying our chances by being over anxious to feed. Glucose and water, or lemonade is one of the first easily swallowed foods with a relatively high food value. Attention has been given to the position in which the patient breathes best. The head of the bed is elevated, and bed sores, and the position of the paralyzed limb are watched; pillows taking the weight of the limb from the supporting joint spare much pain when the nerves resume their function some four weeks to two months later. At this time pressure sores and hot water bottle burns heal with astonishing rapidity, and we are left with the problem of preventing a recurrence, and treating the original underlying cause, which is not always easy.

After recovery, loss of memory of the attack is astonishing. The higher centres may be involved giving rise to dyslopia which disappears as recovery ensues. Irritability and restlessness, with change of character may be expected for a while.

Case reports in brief.

Mr. J., age 75.

At the end of twenty-four hours after a sharp attack he was conscious, could not move his right leg or arm, well marked mitral murmur. Eyes deviated to left, left pupil enlarged. At the end of one week pulse was 90, strong. He had a hot water bottle sore on right forearm. At the end of a month, pain in arm very severe, some small movement possible. The sores began to heal. At the end of five months he could sit up in bed. His arm healed. Mental functions good. Died at the end of a year from cardiac disease.

Mrs. J. A. S., age 65, Diabetic.

At 7 p.m. she complained of pain in head, confusion, and weakness. She had a blood pressure of 140. I assured her that she could not have a stroke and gave a laxative and $\frac{1}{2}$ gr. luminol. At 9 p.m. she was in frank coma. I tested urine, no acetone, no sugar. Gave routine enema, etc. At 6 a.m. she was conscious, did not remember anything of the previous night. She was very irritable, her pupils equal and enlarged, one arm paralysed, and tongue deviated. At the end of a week I had a consultant. Her blood pressure was 180, she was quite excited arranging her earthly affairs. Next morning at rest her blood pressure was 130. A week later blood pressure was again 180 under excitement. Recovery was total and uneventful.

Major D, age 55.

Had had coronary thrombosis two years previously. He felt well on rising, and while shaving his leg went from under him, and his arm felt useless. His tongue deviated, pupils large and equal. Gave routine. His arm was flaccid for two weeks, mouth became sore. Recovery at the end of three months, with much pain in the shoulder.

Mr. S., age 60, very active, fast talker, cook on vessel, not teetotaler.

Blood pressure 170-100. Urine s.p.g. 1030, trace albumen, some hyaline casts. Pulse 90.

On coming from the Banks in 1931, his blood pressure was 220-110. He had had an attack of unconsciousness lasting for two hours at Port Hawkesbury. When he became conscious he went back to work, and washed the dishes. On bed rest, diet, and Pot. cit. mixt. his blood pressure went down to 160, and he felt well.

Next year while shingling he had an attack, where he did not become unconscious, but lost the power of holding anything in his hand. This lasted only a few minutes.

In 1933, while working at the hay, he had a pain in the head lasting several seconds. Then unconsciousness, pupils dilated, pulse full, rapid, bounding. At the end of six hours he became conscious. On recovering he had double vision, and was tested for glasses at the end of three months, but could not be fitted, as every time he was tested he gave a different result. He did not remember anything of being sick, but for quite a while changed from being a very pleasant, to a very nervous irritable man. He lost the power of counting. At the end of four months all trace of paralysis disappeared. He now had his antrum drained, used K.I. 5 grs. t.i.d. At the end of a year his blood pressure was 130-90, functions apparently normal.

In July, 1934, he had been apparently well for a long time. Then he had an attack of indigestion. He could not walk as his right leg was powerless, but he did not lose consciousness. His hands began to twist. When I saw him he was in a convulsive condition, his face congested, one pupil dilated. I gave him a hypo. of morphia, which made him worse, and I gave him chloroform to control the convulsions, then chloral and bromide mixture. On regaining consciousness he had a flaccid paralysis in right arm and leg. I gave him high rectal enema, and consciousness returned in about three hours. At the end of twenty-six hours he had a temp. of 102. pain in head again became severe, making it necessary to use morphia with the

chloral mixture. The paralysis in leg and arm were complete. Semiconsciousness persisted for five days. At the end of four weeks neuralgic pain in arm became severe. He was able to move his fingers. At the end of six months he can use his arm with a good degree of accuracy, and can walk using a circular sweep of the leg. There is still numbness in the right arm. The double vision has disappeared. He cannot count correctly, but his speech shows no gross errors.

This I take to be an example of an occlusion of a cerebral artery.

Dalhousie Graduates Lead All Canada in Examinations.

In the official analysis of the tabulated results just announced of the Medical Council of Canada examinations held last June, of the candidates of the seven medical schools in Canada, those from Dalhousie lead the Dominion. In those who presented themselves, all representatives from Dalhousie passed—there was not a single failure. There were ten candidates from Dalhousie with a combined average of 73.4%. They lead the Dominion in practically all subjects written. These examinations give the candidate the privilege when he passes them of registering and practicing in any province in Canada. They are conducted yearly by an examining board of outstanding Canadian medical men, at several points across Canada, with a Central Examining Board which meets at Ottawa. In the station at Halifax, the men have an oral examination, conducted by medical men of Nova Scotia and New Brunswick. The written examinations are examined and marked by the Central Examining Board, which meets at Ottawa.

Survey of Marks.

A survey of the marks would indicate that a representative of Dalhousie is second of all the students in Canada—totalling 280 candidates who wrote the examinations.

The Dalhousie candidates who wrote the examinations and who were all successful, are: Malcolm B. Dockerty, John S. Robertson, Raymond M. Zwicker, William Ross Wright, John E. Andrew, Harvey D. Hebb, William D. Piercey, Joseph E. Hiltz, Charles E. Stuart, William E. Pollett.

In previous years Dalhousie has made remarkably good showings in these examinations.—*Halifax Mail.*

The Nova Scotia Medical Bulletin

Official Organ of The Medical Society of Nova Scotia.

Published on the 5th of each month and mailed to all physicians and hospitals in Nova Scotia. Advertising forms close on the 15th of the preceding month. All Mss should be in the hands of the Business Editor on or before the 10th of the month. Subscription Price:—\$3.00 per year.

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VOL. XIV.

JANUARY, 1934

No. 1

THE GENERAL PRACTITIONER IN MODERN MEDICINE

THE rapid progress which has been made in the different sciences pertaining to the practice of medicine during the past twenty years leads one to hope that in the not too distant future the practice of medicine may become an exact science.

So it would appear to the recent graduate and so it might appear to one whose practice consists solely of hospital or consulting work. The cases they see have a well defined clinical picture, and usually definite pathological lesions, which, with the many instruments for testing bodily functions which are on hand today, usually can be detected and in an ever increasing proportion of cases, a definite diagnosis obtained and definite prognosis given. True it is that a very large percentage of prognoses must be of a grave nature and that too large a number of patients must be told their trouble is of a progressive nature and not amenable to treatment at that stage. But at any rate we have the satisfaction of knowing our prognosis was made with scientific accuracy.

To the general practitioner, however, a totally different picture presents itself. He too sees many cases like the above mentioned which he is either able to diagnose himself, or to send to a hospital for observation, and in due time receives a lengthy report of blood chemistry, X-ray, basal metabolism rate, etc., and a diagnosis which would indicate that on account of some condition which took place years before, and was unrecognized, certain pathological changes in certain organs had taken place, which will limit the usefulness or the length of the patient's life, in spite of any known treatment. By far the larger number of his patients, however, do not belong to this class. They present all kinds of pictures and complain of all kinds of symptoms, from sleeplessness, nervousness, headaches, backaches, so called neuritis, and so forth, and only too often, even after the most careful examination, no physical signs can be made out, and they are labelled in the mind of the practitioner as neurotics, prescribed a tonic, reassured and sent out.

Those of us who have been in general practice for a number of years have seen many of these cases, and too, have had numbers return after many years of these symptoms, complaining of some very suggestive symptom or sign, such as shortness of breath on exertion, with edema of the ankles, or

with increased blood pressure, or some other sign which would at last indicate that something of a grave nature was taking place.

We who were at college twenty-five years ago remember that it was practically considered at that time that any heart which on auscultation did not show a murmur of some kind was classed as normal, in spite of these symptoms which we know to-day indicate grave cardiac disease.

For a great deal of our present day knowledge of heart conditions, we are indebted to Sir James MacKenzie, who for many years as a general practitioner carried on observations of his patients, which ended in his being able to revolutionize our whole conception of heart affections.

This would seem to indicate that possibly many other symptoms which we are today inclined to overlook, or to make light of, might be an early warning of future disease, and would lead one to believe that there is room for research in this direction, at least equal to laboratory or other scientific research.

For this reason it would appear desirable that we make every effort to procure and retain a proportion of our graduates, with talent, for research work in the field of general practice, and it is to be hoped that our colleges will not fail to stress the rewards for those who enter general practice as well as the specialties.

F. R. D.

(Though we have made this number to represent the Lunenburg-Queens Branch, editorial column and all, we, as always, reserve our prerogative to speak from this chair when occasion seems to require. We deem the first number of the year to be such an occasion, and we are not sacrificing any of Lunenburg-Queen's excellent material to engage it.—Editor).

“Ring out the old, ring in the new.”

THE BULLETIN has closed another year of usefulness and has again very satisfactorily demonstrated the success of a co-operative enterprise. For such is the official journal of the Medical Society of Nova Scotia. True, it requires direction and those charged with that responsibility have not failed it. It has required a great amount of detail work which has been provided by the Secretary and his stenographer, but the very breath of its life has come from those numbers from Cape Breton and Yarmouth and all the intervening places, who have taken up this privilege and contributed to its pages.

In doing that they have also contributed to the respect which the Journal is increasingly winning both in its own bailiwick and in lands more remote. It is true that our efforts have not always shone with great literary brilliance, but that has not greatly disturbed us. Our *raison d'être* was not to add another star to any literary constellation, but rather primarily to be an instrument of cohesion between the members of our Society throughout its far-flung constituency.

In taking stock of the past year, a year in which it was again made possible through our pages for Pubnico to have communion with Magaree, and for Papa McNeil at Glace Bay, to send out his kindly Christmas encyclical to all the Doctors in the province, we believe that its primary function has again been fulfilled.

We believe also, however, that one of the great needs experienced by our members is that of post graduate education. The attendance at the Annual Meeting, the Dalhousie Refresher Course and the American College of Surgeons'

Clinical Congress support that belief. We feel that the BULLETIN has contributed very materially to that need, and while "another scientific journal" was a desideratum for which we were not to strive, and while literary excellence was not to be a prime consideration in accepting contributions, yet a very definite improvement is to be noted in both the scientific and the literary qualities of our contributions, and insofar as that has obtained we believe that it has very materially subserved our primary function. But whatever the cause of our cohesion, we feel that as the year closes there is a sense of fraternity about, wider and deeper than has probably existed before, and that in spite of the fact that not a few felt it impossible to make good their membership.

And now, what of the future? It is nice to think upon the peace which pervades our atmosphere as our old year closes. Should we in consequence regard peace as the ideal state, take it as our watchword for the New Year and "Give peace in our time, O Lord" as our prayer? For a world sick and sore-afraid there could probably be none better, but for medical men, it will not do. When people of old years must die we desire that they die in peace, but apart from that, what have we to do with peace? The enemies of peace assail us at our very gates. Tuberculosis calls insistently for reinforcements. Cancer demands an immediate warfare upon ignorance, and with quackery stealing the substance and often the very lives of our people can we peacefully go by on the side of indifference and ease? These are the demons which even now assail us and in the offing is a profound readjustment or a complete reconstruction of the practice of medicine.

What then is our need? Surely at first it is vision and leadership, and then very close upon that, unit within the organization, with every practitioner in the province a member, constituting a unit of strength in the fight, and in turn reaping the benefits that accrue from the confraternity of common effort.

Logically then our New Year Wish for you is for Courage and Wisdom—Courage to take up the tasks that are obviously ours, and Wisdom through which we may be guided towards the goal of our ideal. The wish for such blessings the BULLETIN heartily extends to you, believing that in accomplishment lies the truest happiness.

N. H. G.

Sir Joseph Chisholm, C.J.

Many of our readers experienced a thrill of real pleasure when they learned that Chief Justice, now Sir Joseph Chisholm, had been honoured by a Knighthood from His Sovereign at New Years.

Sir Joseph came to be known to many medical men through his judgment in the case *Marshall vs. Curry* published in this Journal, in which he surprised many by his familiarity with medical thought and by his very fine appreciation of values. His more intimate connection with things medical, however, has been shown by his interest in the directing of the Victoria General Hospital of which he is a Commissioner.

Those who know him better find in him a combination of profound scholarship, keen perspicacity, kindness and modesty as rare as it is delightful. Titles find ample justification when employed in the recognition of such worth.

The BULLETIN is most happy to join the many thousands of our citizens who are extending to the Chief Justice sincerest felicitations.

N. H. G.

CASE REPORTS

A Sequence of Cardiovascular Accidents.

Patient, a male age 49, occupation, office work.

For about a year prior to Feb., 1933, patient complained of some shortness of breath on exertion. Physical examination negative except slight cardiac enlargement. Urinalysis negative.

Nov., 1932, electrocardiogram (Dr. K. A. MacKenzie), negative except that it showed some left ventricular preponderance. Heart (X-ray) showed some hypertrophy. B.P. 190/100. The B.P. had been taken at intervals during previous year and following that date, usually after a round of golf, and never found to be above 160-170/90.

Feb. 20th., 1933 while out for a walk was seized with a severe pain in left leg. On examination the foot was cold and no pulsation of Dorsalis Pedis Artery. Diagnosed as Embolism or Thrombosis of Anterior Tibial Artery. Rest in bed advised, but allowed to go to the bathroom with the aid of crutches.

Mar. 12th. 1933, while in bathroom he was suddenly seized with severe dyspnoea and on examination shortly after his pulse almost too rapid to count, respirations 45-50, no pain or vomiting, but looked badly and was greatly distressed. Morphia grs. $\frac{1}{4}$ given hypodermically. The following day Dr. K. A. MacKenzie was called in consultation. At that time his pulse was 160 and respiration 40. No physical signs found in chest. Temperature 99 $\frac{3}{5}$. A diagnosis of Coronary Thrombosis was made and the patient ordered the usual sedative treatment and rest.

He was apparently making a good recovery until April 28th when he developed a Thrombophlebitis in his left Femoral Vein. Blood chemistry normal and bacteriological examination of blood negative.

May 12th, the same accident occurred in the Right Femoral Vein and he became acutely ill and was removed to the V. G. H. The condition spread to the Iliac Veins, the oedema reaching the level of the Umbilicus. He had a very stormy time for a few weeks.

He returned home July 4th. The legs were still badly swollen and had a moderate degree Tachycardia. He remained in bed until October when he started very gradually to get around, the Tachycardia being his chief complaint.

All possible foci of infection have been attended to and Electrocardiograms in July, October, 1934 showed no more than the one noted above.

It is to be noted that the Electrocardiograms did not give evidence of the attack of Coronary Thrombosis in 1933.

Except for Tachycardia on exertion, the patient appears, considering his illness, in excellent condition and living a very quiet life as instructed.

D. W. N. ZWICKER, M.D.,
Chester, N. S.

Hemorrhage in New Born Child.

Dec. 11, 1934. Normal easy labour, child a boy apparently in normal health.

Dec. 12. Baby passed dark stools but nurse did not report them.

Dec. 13. More dark stools and vomiting of blood and slight convulsion. Appearance of baby, pale and in condition of shock. Another doctor called in consultation and 20 c.c. of father's blood injected in baby's buttocks, half in each buttock. All food withheld for 36 hours, except a teaspoonful of water every hour containing a little corn syrup.

Baby resumed nursing at end of 36 hours, no further hemorrhage.

A. C. McLEOD,
Caledonia, Queens Co., N. S.

A Case of Missed Abortion, June, 1913.

A robust healthy woman aged 27, mother of two healthy children (now the mother of thirteen) gave a history of the usual symptoms of pregnancy till end of third month, when she had an attack of severe pain in her side and vomiting. From that time on no sign of pregnancy and no enlargement, but very nervous.

At seven and a half months from time of her last menstruation she called me on account of pain in right iliac region. Examined under chloroform and diagnosed missed abortion. Inserted catheter into uterus and packed vagina. Later was able to insert sponge pessary. Pain came on in 12 hours and 7 hours afterward delivered contents of uterus, a bag of membranes containing large placenta (size and appearance of healthy 7 or 8 months placenta) also foetus 3 inches long somewhat shrivelled.

Recovery uneventful.

A. C. McLEOD,
Caledonia, Queens Co., N. S.

Some Uses for Apomorphine.

While overseas, I was called during the night of Christmas, 1915, to see five soldiers in epileptic convulsions. Knowing that they had eaten and drunk in a Falstaffian manner, I got my medical corporal to accompany me with a bucket, while I administered a hypo of 1/10 gr. apomorphine to each man. Inside of half an hour, I had a bucketful of Christmas cheer, and the sick men were sleeping. Next morning, I was called to see a sergeant who had the D. T's. He was full of fight and full of rum. Three men were trying to hold him down. Gr. 1/10 of apomorphine took the kick out of him, and also the rum. After vomiting, he slept all day, and was around next morning. I have also used this drug with unailing success in the mid-Victorian type of hysterical convulsions—one hypo drops the curtain on their exhibitionism and changes the scene to one of nausea and misery, followed by quiet and sleep. I never use the drug in chronic alcoholism or in persons with feeble circulation.

G. A. BARSS, M.D.,
Rose Bay, N. S.

Unusual Car Accident.

Boy 18 years, struck by passing car, the point of doorhandle entering right side of chest in mid-axillary line, penetrating pleura and lung, also hooking and fracturing the 10th and 11th ribs and finally snapping off.

When called I found the boy almost pulseless and in severe shock. The car door handle was still in his chest. The wound was sucking air. I removed the handle, strapped on a sterile pad over wound and took boy to his home, first giving gr. $\frac{1}{4}$ morphine with atropine. After treating the shock Dr. Creighton and I explored the wound, removed blood clots, placed the ends of ribs in apposition by sutures through the periosteum. We stitched up incision without drainage. We strapped on dressing and also strapped the upper part of chest wall. In five day's time a small swelling appeared at upper part of wound. I opened this and some pus and pieces of boy's shirt and coat came out. After this, recovery was uneventful with no complications.

G. A. BARSS, M.D.,
Rose Bay, N. S.

For Country Doctors. When your tire chains fit tightly and are almost impossible to put on, heat them on top of kitchen stove, and they will go on quite easily—the heat lengthens the links.

Ruptured Spleen with Delayed Symptoms.

The following case is sufficiently uncommon in small town practice to be worthy of mention.

On June 25th Dr. Angus MacDonald of New Germany was called to see a young man of twenty-four who had been kicked by a horse. The kick was of sufficient force to knock him down. Physical examination disclosed the faint imprint of the horse's hoofs on the left lateral chest wall, but no other marks of violence. Abdominal palpation elicited but slight tenderness in the right epigastrium. The patient's colour was good, his pulse 90, and his temperature normal. Besides surface soreness in the area kicked, he complained of a vague, diffuse discomfort in the abdomen. He was given a non-narcotic analgesic, ordered to remain in bed, and to report any unusual symptoms.

On the following day (June 26) he was again visited by Dr. MacDonald, examination proved negative. The patient was fairly comfortable.

On June 29th, four days after the accident, he was seized with sudden severe abdominal pain. Dr. MacDonald was not at home at the time and I was called, but we both arrived at the same time. We found the patient very pale, his breathing shallow and thoracic, his expression anxious, his pulse around 130 and of very poor quality. His abdomen was exquisitely tender, and abdominal muscles rigid. It was quite evident we had on our hands an abdominal disaster requiring immediate surgical interference. We agreed on a provisional diagnosis of a ruptured viscus, probably spleen. He was given a hypodermic of morphia and carefully moved by ambulance to the Dawson Memorial Hospital at Bridgewater. By the time he arrived at the hospital he had recovered somewhat from the initial collapse. His pulse was 120 and of distinctly better quality. Dr. W. N. Rehfuss, who saw him

then, agreed as to the urgent need for exploration. The patient's blood was matched with that of his brother who proved to be a suitable donor and was therefore held in readiness.

At operation his abdomen was found to be literally full of blood. The source of the bleeding was quite evident as soon as I passed my hand into the upper left abdominal angle. The spleen was embedded in a large haematoma and was badly lacerated in several places. I encountered no great difficulty in ligating the pedicle and removing the spleen, although I had to extend the incision to the left in order to get better exposure.

At the close of the operation the patient was extremely pale, and pulse very rapid and feeble. He was given a transfusion of 750 c.c. of citrated blood, returned to bed, and continuous intravenous and intramuscular saline started. His condition improved rapidly and his two weeks in hospital was uneventful.

His subsequent history is rather interesting. During the two weeks that I attended him following his departure from the hospital, and during the remainder of his convalescence when he was attended by Dr. MacDonald, his appetite remained very poor, he was very irritable and difficult to manage, and he was extremely constipated. He also ran a low grade temperature (99-100) up to the second day of August, and between July 12th and August 14th he had four attacks of severe pain in the lower abdomen. These were relieved, after periods varying from eight to fifteen hours, by the administration of oil and sedatives. These symptoms, as far as I can determine, were due to the temporary systemic unbalance, or what Hamilton Bailey calls "Splenic Asthenia", caused by the removal of the spleen. This condition is relieved by the administration of arsenic, and this, with iron, he was given from the outset. The patient felt well enough to begin light work and did, although advised not to, on August 14th. At the time of writing Dr. MacDonald advises me that the man is in excellent health and is able to do all the work on his farm. His last red cell count was 4,800,000.

The most interesting feature about this case is the delay of urgent symptoms for four days, in the presence of a badly lacerated spleen. Hamilton Bailey, whose chapter on Intra-abdominal Injuries in his "Emergency Surgery," Vol. 1, 1930, is very comprehensive, describes four types of ruptured spleen.

1. The patient succumbs rapidly, never rallying from the initial shock.
2. Initial shock—recovery from shock—early signs of ruptured spleen.
3. The signs of an intra-abdominal disaster are delayed.
4. Spontaneous recovery.

The case under review definitely falls in the third group. The delay of serious bleeding is explained in one of three ways.

- (1) The great omentum, performing its well known constabulatory duties, shuts off the peritoneal cavity in the vicinity of the spleen.
- (2) A bloody coagulation temporarily seals the rent.
- (3) A subcapsular haematoma forms, and later bursts.

I believe that in this case the main factor in the delay was the last mentioned one.

In conclusion, it is well to bear in mind in all injuries to the upper left abdomen or lower left chest, the possibility of a ruptured spleen and watch closely for signs of haemorrhage and collapse.

SAMUEL MARCUS, M. D.
Bridgewater, N. S.

An Extensive Burn.

C. F., an electrician, was severely burned—face, neck, arms, hands, legs and feet. He was treated with “tannic acid” compresses and made an uneventful recovery.

Method of treatment used is as follows*. As a first-aid measure, the burned area is completely covered with tannic acid compresses. To combat shock and alleviate pain Tr. opii. is used. A general anaesthetic is not desirable on account of pulmonary complications.

Age	1. Children. Drug	Dosage
1 month	Tr. Camph. Co.	M. $\overset{\cdot\cdot}{\text{II}}$ - $\overset{\cdot\cdot}{\text{III}}$
2 "	Tr. Camph. Co.	M. $\overset{\cdot\cdot}{\text{IV}}$ - $\overset{\cdot\cdot}{\text{VI}}$
3 "	Tr. Opii.	M. $\frac{1}{4}$ - $\frac{1}{3}$
6 "	Tr. Opii.	M. $\frac{2}{3}$ - $\frac{3}{4}$
1 year	Tr. Opii. or Inj. Morph.	M. $\overset{\cdot\cdot}{\text{II}}$ - $\overset{\cdot\cdot}{\text{III}}$ Gr. 1/75
Over 1 year	Tr. Opii. or Inj. Morph.	M. $\overset{\cdot\cdot}{\text{II}}$ for each year and M. $\overset{\cdot\cdot}{\text{II}}$ in 15 mins if necessary. Gr. 1/75 for each year.
	2. Adults.	
12-15 years	Tr. Opii. and Inj. Morph.	M. XXX Gr. 1/6
15-20 years	Tr. Opii. and Inj. Morph.	M. XXX Gr. $\frac{1}{4}$
Over 20 years	Tr. Opii. and Inj. Morph. or Inj. Morph.	M. XXX Gr. $\frac{1}{4}$ - $\frac{1}{3}$ - women Gr. $\frac{1}{3}$ - $\frac{1}{2}$ - men

Routine Treatment.

First-aid dressing is completely removed when patient is narcotized, i.e. about $\frac{1}{2}$ hour after opiate is given. Then all dead and charred tissues are removed, particular attention being paid to edges. Grease and skin over blisters is removed. Burned area is thoroughly swabbed with soap and water using a sterile swab. Next, area is sponged with ether. The area is now covered with sterile gauze—6 layers 8 x 3" thoroughly soaked in tannic acid solution 2% and perchloride of mercury 1:2000. Dressing should not be wrung out. A bandage is firmly and evenly applied to outer side of compress. Sheets are protected by a mackintosh. This dressing is left in place 2 to 3 weeks according to size of burned area, when scab separates on removing dressing which can be facilitated by tannic acid solution. Rarely, toxæmia

* P. H. Mitchiner—St. Thomas' Hospital, London.

indicated by raised temperature, dry and furred tongue, pain and possibly escape of serum necessitates removal of dressing. In this case, a fresh application of tannic acid compresses is all that is necessary. Subsequent contractions are counteracted by immobilization and if necessary autogenous skin grafting for deeper ulcers.

Smaller ulcers are treated successfully by—

Rx.	Pulv. Alum	Gr. XX
	Zinc Sulph.	Gr. X
	Glycerine	Z $\frac{\cdot}{\cdot}{\text{VII}}$
	Aqua ad	O $\dot{\text{I}}$

Status Asthmaticus.

A. L., age 37 yrs. carpenter, victim of severe asthma with chronic bronchitis was seized with an attack of the rare condition of "Status asthmaticus" in which severe asthma continues uninterruptedly for days or weeks and may end in final exhaustion. He was treated with small doses of adrenalin, morphine, chloroform with poor results. He was next treated by the method of continuous adrenalin injection developed first by A. F. Hurst. The needle was kept in position with a full syringe, and after an initial injection of 7 minims, one minim was injected every 30 seconds for 45 minutes, when the patient was relieved and promptly fell into a deep sleep. At a later date, December 1st, patient was seized with a similar attack in which above method failed, the failure being due to a severe reaction (after injection of 4 minims of adrenalin) manifested by an exquisite unbearable pain in occipital region of head.

This attack was cured after drugs failed to give relief by moving patient into an unfurnished secluded bedroom in his own house. At one time, he became exhausted, respirations 8 per m., deep cyanosis, pulse weak although regular. At this time he was given Atropin Sulph. gr. 1/100, and then removed to a different room, when relief was attained. At the present time this man is taking 5 minims of adrenalin every 15 minutes; Morph. Sulph. gr. $\frac{1}{4}$, t.i.d., and small doses of potassium iodide at night.

ANGUS J. MACDONALD, M.D.,
New Germany, N. S.

It is Alleged Henry Ford Told This Himself.

Henry Ford tells this story on himself: He was in the habit of using a Ford car to drive to and from his factory in Detroit, and his summer home just outside of Detroit.

One evening on his way home he came across a man on the road who could not get his Ford started. Henry Ford got out of his machine and in a few minutes managed to get the machine to go.

The man, very much pleased, offered Ford two dollars for his trouble.

"Keep your money," said Ford. "I have more now than I could possibly spend."

"Then why," said the man, "do you ride around in one of these damn things?"

Department of the Public Health

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Those physicians wishing to make use of the free diagnostic services offered by the Public Health Laboratory, will please address material to Dr. D. J. MacKenzie, Public Health Laboratory, Pathological Institute, Morris Street, Halifax. This free service has reference to the examination of such specimens as will assist in the diagnosis and control of communicable diseases; including Kahn test, Widal test, blood culture, cerebro spinal fluid, gonococci and sputa smears, bacteriological examination of pleural fluid, urine and faeces for tubercle or typhoid, water and milk analysis.

In connection with Cancer Control, tumor tissues are examined free. These should be addressed to Dr. R. P. Smith, Pathological Institute, Morris Street, Halifax.

All orders for Vaccines and sera are to be sent to the Department of the Public Health, Metropole Building, Halifax.

Report on Tissues sectioned and examined at the Provincial Pathological Laboratory from December 1st, 1934, to January 1st, 1935.

The number of tissues sectioned is 117. In addition to this, 38 tissues from 7 autopsies were sectioned, making 155 tissues in all.

Tumours, malignant	15
Tumours, simple	9
Other conditions	93
Tissues from seven autopsies	38

Communicable Diseases Reported by the Medical Health Officers
for the month of December, 1934.

County	Chicken Pox	Diphtheria	Infantile Paralysis	Influenza	Measles	Paratyphoid	Pneumonia	Scarlet Fever	Typhoid Fever	Tbc. Pulmonary	V. D. G.	V. D. S.	Whooping Cough	German Measles	Impetigo	Septic Sore Throat	Pink Eye	Erysipelas	TOTAL
	Annapolis...	43	..	1	1	..	1	1	7
Antigonish...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cape Breton..	28	2	..	4	505	..	..	..	..	..	..	..	..	20	..	..	..	..	559
Colchester...	..	..	..	..	6	..	1	1	..	..	..	..	..	..	..	..	..	..	8
Cumberland..	..	..	1	..	13	..	..	..	2	..	2	..	2	71	..	..	..	..	91
Digby.....	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	2
Guysboro....	..	..	..	..	..	..	..	..	..	..	1	..	19	..	..	..	..	..	20
Halifax City.	3	10	..	..	2	..	..	12	..	..	..	..	1	1	..	..	..	1	30
Halifax.....	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Hants.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Inverness....	..	..	..	..	10	..	3	..	..	..	1	1	..	20	..	..	..	..	35
Kings.....	2	..	..	10	1	..	2	..	..	1	..	1	..	2	1	1	1	..	22
Lunenburg...	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
Pictou.....	..	..	..	..	49	..	..	..	..	..	..	..	..	6	..	..	6	..	61
Queens.....	2	..	..	1	..	..	..	2	..	..	1	2	..	..	..	..	..	..	8
Richmond....	..	..	..	..	..	..	..	..	..	..	..	..	29	1	..	..	..	..	30
Shelburne...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Victoria.....	..	..	..	..	20	..	..	..	..	..	..	..	..	..	..	..	..	..	20
Yarmouth....	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
TOTAL.....	80	12	2	16	606	1	7	18	2	2	5	4	58	121	1	1	7	1	944

RETURNS VITAL STATISTICS FOR NOVEMBER, 1934.

County	Births		Marriages	Deaths		Stillbirths
	M	F		M	F	
Annapolis.....	7	9	13	7	6	0
Antigonish.....	8	11	11	9	9	0
Cape Breton.....	93	93	105	59	43	1
Colchester.....	20	11	9	16	9	0
Cumberland.....	29	27	35	16	22	0
Digby.....	16	15	15	13	8	1
Guysboro.....	13	13	10	11	8	4
Halifax.....	90	86	90	57	58	5
Hants.....	24	19	14	6	13	0
Inverness.....	11	10	10	4	12	1
Kings.....	30	24	38	14	20	1
Lunenburg.....	30	26	29	16	16	2
Pictou.....	23	23	16	22	16	2
Queens.....	10	10	11	2	3	1
Richmond.....	5	9	10	5	2	0
Shelburne.....	11	12	2	8	11	0
Victoria.....	2	3	4	2	4	0
Yarmouth.....	13	8	15	9	7	0
	435	409	437	276	267	18

LABORATORY

LABORATORY EXAMINATIONS: Their indications, method, and interpretation with special reference to the requirements of the general practitioner.

By RALPH P. SMITH, M.D., D.P.H., Provincial Pathological Laboratory, Halifax, N. S.

Urine Tests for Occasional Use.

Collection of a twenty-four hour specimen: No quantitative test is of value unless performed on a sample of a mixed twenty-four-hour specimen. The physician should inform himself as to the patient's fluid and food intake. The following definite instructions should be given to the patient. Empty the bladder at 8 a.m. and discard the specimen. Collect in a clean 80 ounce bottle all urine passed until 8 o'clock the following morning and at that time empty the bladder, adding it to the collected specimen. The patient should collect the urine before moving the bowels; otherwise considerable urine will be lost. After mixing the specimen well, measure the whole quantity in ounces, record the amount and bring a sample of the mixed urine in a 4 to 8 ounce bottle for examination.

Water Tests for Renal Function: The first and most reliable test to employ is the simple urine concentration test of Addis.

Principle: Kidney function consists in the concentration and removal from the blood of waste products which are then excreted in the urine. There is no serious impairment of renal function if the specific gravity of the urine can be elevated to 1.025 or over. By the following technique restriction of fluids is obtained for a period of twelve to fifteen hours mostly while the patient sleeps. This is a convenient arrangement and avoids distress from thirst.

Instructions to the patient: About 6 p.m. eat a usual supper barring fluids of any kind such as water, tea, coffee, milk or soup and do not eat or drink again until the test is completed. Empty the bladder at bedtime, discarding the specimen. On waking in the morning empty the bladder and save the urine in a bottle marked No. 1; Remain in bed and an hour later collect another specimen in a separate container labelling it No. 2. If the hour is early, a third specimen may be collected two hours after waking.

The Test and Interpretation: Take the specific gravity of specimens saved, observing precautions for accuracy, laid down.

If the patient's renal function is competent, the maximum specific gravity will be over 1.030 frequently 1.032 to 1.034.

The lowest figure that can be considered a normal maximum is 1.025. In assaying results a high reading is more reliable than a low reading. Low

readings may be due to 1. the patient failing to follow instructions; 2. eating a diet which has a very low-salt and low-protein content or 3. the excretion of retained fluid from oedematous tissue. These ruled out, a maximum figure below 1.025 indicates an impaired renal function and if the maximum is only 1.020 there is a very serious kidney defect. At the same time the blood urea and other non-protein constituents may be normal because of a diminished protein intake or because of a compensating polyuria. A twenty-four hour specimen with a specific gravity of 1.010 and a volume of 2,500 c.c. contains the same amount of waste product as if it had a specific gravity of 1.022 and a volume of 1,250 c.c. The water excretion is also less than in a normal kidney and only by continuous action does it excrete large amounts.

Finally this polyuria gradually fails, producing a retention of nitrogenous waste in the blood as demonstrated by the increased readings of the blood urea nitrogen. The water-dilution test now shows a greatly delayed excretion. After drinking 1,200 c.c., less than 400 c.c. are excreted during the first four hours.

The concentration test is the first to indicate deficient renal function in the advancing arteriosclerotic kidney or in early glomerulonephritis. Here there may be no albumen even after nitrogenous retention develops, but the patient usually has nocturia.

When heart failure develops the specific gravity of the urine is at a continuous level of about 1.020 but the volume is seriously diminished.

The Specific Gravity Test of Volhard: This test is more inconvenient to the patient than the urine concentration test. Its result is influenced by circulatory as well as renal inefficiency and it shows more positive findings in nephrosis than does the water concentration test.

The Test: In the early morning the patient empties his bladder, and then drinks 1,200 c.c. of water over a period of one-half hour. During the day nothing but a dry diet is eaten. Measure the amount and save a sample of all specimens passed during the day.

Result: A normal person will secrete 1,000 to 1,200 c.c. during the first four hours following the ingestion of the water. Some of the specimens will have a specific gravity as low as 1.003. Late in the day the amount of urine decreases and by the late afternoon the specimens will have a specific gravity as high as 1.025.

In passive congestion of the kidney due to heart failure, in nephritis showing oedema, or in advanced chronic nephritis without oedema the specific gravity may not go lower than 1.005 or 1.010 and there may be as little as 400 c.c. excreted in the four hours following the drinking of the water. There will be a delayed excretion of the water as long as twelve hours after.

There are many modifications of this test, some requiring a standard diet, set hours for passing the urine, one day for diuresis and the next day for the concentration test, but the information obtained from all is much the same.

Two Two-hourly Quantity and Specific Gravity Test: The two hourly quantity and specific gravity test as outlined by Schlayer and Hedinger and modified by Mosenthal is popular with some clinicians. Its technique is as follows, but it seems almost impossible to collect all the specimens at the proper hours.

Instructions to Patient: Eat a usual meal at 8, 12 and 5 o'clock with about 600 c.c. (20 ounces or 1 pint) of fluid at each meal. Do not eat or drink between meals. Empty the bladder at 8 a.m. and discard the specimen. Save in separate containers specimens voided at 10 a.m., 12 noon, 2, 4, 6, 8, 10 p.m., the night urine passed from 10 p.m. up to and including the specimen passed at 8 a.m. next morning and label accordingly. Measure the quantity of each specimen and estimate its specific gravity with the urinometer and record them opposite the time at which the specimen was passed. The important points in a normal case are:—

1. A night urine of under 400 c.c. in quantity.
2. The total amount excreted over 1200 c.c.
3. Variations in specific gravity of the day urine of 10 points or more and a night urine with a specific gravity of 1.016 or over.

Pathologic Findings: 1. When kidney function becomes impaired it is first manifested by an increase in night urine which indicates an over-worked kidney. Over 400 c.c. is suspicious and over 700 definitely abnormal. 2. The total amount will be under 1,200 c.c. in tubular (chronic parenchymatous) nephritis and in heart failure. The specific gravity will be fixed at a high level. 3. A low fixed specific gravity where the highest is not over 1.006 and there is less than 10 points variation is a serious sign of nitrogenous retention. There is a compensating polyuria. If it fails death will occur shortly. The low fixed specific gravity is found most frequently in advanced glomerular (chronic interstitial) nephritis, but it may be found in anaemia, polycystic kidney, pyelonephritis, hypertrophied prostate and urethral structure.

Phenolsulonephthalein Test (Dye).

Obtaining the Specimen: Give the patient two glasses of water to promote secretion of urine. After five to ten minutes have him empty his bladder. Discard the urine and inject exactly 1 c.c. of the "phthalein" from the ampoule into a prominent vein at the elbow. Collect specimens of urine one-half hour and one hour after injection.

The Test: Measure the first specimen of urine, add about a dram of powdered sodium bicarbonate. Dilute to 1000 c.c. and filter a sample for colorimeter estimation. With the Dunning colorimeter the sample to be tested is placed in the open ampoule and compared with the standard. If this is not at hand the percentage may be estimated by comparing the standard solution with the unknown in test-tubes.

Intravenous Compared with Intramuscular Injection and the Normal Output: The intravenous route is chosen for injection to avoid the absorption hazard when the dye is injected intramuscularly or subcutaneously into tissues that have sluggish circulation, oedema or fat. These would delay absorption so that little or none of the dye would come through the kidneys even when they are normal. The intravenous injection of the dye is not at all dangerous. For hurried office practice, it is best to take a specimen of urine fifteen minutes after the dye is injected. If this specimen contains over 30 per cent. of the dye, the kidney function is normal and one need not proceed further with the test. The normal kidneys excrete on an average 40 per cent. during the first fifteen-minute period, 17 per cent. during the second, 8 per cent. during the third and 4 per cent. during the fourth.

If the half-hour period is taken, over 45 per cent. should be normally excreted during the first half hour and 10 to 15 per cent. during the second half hour. If the original intramuscular injection of the dye be employed over 50 per cent. of the dye should be excreted during the first hour.

Interpretation: In renal disease there is a delayed and a diminished output of the dye. The exception to this is in acute diseases. In the critical acute glomerulonephritis of scarlet fever the percentage excreted may be normal. The test is valuable only in chronic disease and a normal result is good proof that the kidney function is efficient. The dye shows renal impairment nearly as early as does the water tests and long before the blood urea begins to increase. Low readings do not always mean that nephritis is the primary trouble. In cystitis and pyelonephritis the percentage of dye excreted is unduly low and a bad prognosis should be given from the dye percentage in such states. In heart failure even when the dye is injected intravenously the dye output may be less than half normal while the blood urea is normal. Prostatic and other urinary obstructions give low-excretion percentages so that it is necessary to ascertain the cause of the diminished reading.

When all causes other than renal disease can be excluded a total excretion of less than 10 per cent. indicates severe renal damage and the duration of life is not likely to exceed several months.

This dye test is of use in testing the function of each kidney prior to nephrectomy.

The Canadian Medical Protective Association

PRESIDENT - R. W. POWELL, M.D., F.A.C.S.

Founded in 1901, at the Winnipeg meeting of the Canadian Medical Association incorporated by Act of Dominion Parliament, February, 1913, and affiliated with the Canadian Medical Association, 1924.

Objects:—

To defend its members against cases of alleged malpractice, and to encourage honourable practice in the daily work of the medical profession. The annual fee is five dollars per calendar year, half-rates after July first.

Subject to our by-laws the taxable costs of actions together with reasonable counsel and witness fees are paid in cases undertaken by our Association, as well as damages if awarded. All members in good standing of the Canadian and various Provincial Medical Associations, may be enrolled upon signing the application form and paying the annual fee. All other regularly qualified practitioners must have their application countersigned by two members of our Association. Blank application forms and other literature upon request.

Address all correspondence to the Secretary-Treasurer
J. FENTON ARGUE, M.D., Secretary-Treasurer,
116 Nepean Street, Ottawa, Canada

OBITUARY

THE medical fraternity in Halifax and elsewhere will mourn the loss of one of their promising members in the person of Dr. Clarence F. Moriarty, who passed away at Annapolis Maryland, on January 14th. Dr. Moriarty was the son of Mr. and Mrs. P. F. Moriarty, LeMarchant Street, Halifax. His death climaxed a lengthy illness, born with great fortitude. Born in Truro, he received his education in Halifax and in 1915 went overseas with No. 7 Canadian Stationary Hospital, Dalhousie Unit. Subsequently he received a commission in the Royal Air Force. On his return he entered the Dalhousie Medical School from which he graduated in 1925. Since his graduation he has occupied the post of County Health Officer in the States of Virginia and Maryland, and for a time served with the Rockefeller Foundation in the Phillipines.

The death occurred recently in New York of Dr. Howard D. Urquhart formerly of Pictou. He was a graduate of Dalhousie University and received his medical degree from Bellevue Hospital Medical College in 1906. He was an Orthopaedic Surgeon and Consultant, Vice-President of the New York Dalhousie Club, and a member of the New York Academy of Medicine and of the American Medical Association.

Mrs. Murray, mother of Dr. Dan Murray of Tatamagouche, passed away at the home of her daughter, Mrs. William Ritchie, New Glasgow, on December 13th, 1934.

Mr. John A. Havey died on November 10th, 1934, at West Robury, Mass. Mr. Havey was born at Sandy Cove, Digby County, a son of the late Judge and Mrs. Bernard Havey, and a brother of Dr. H. B. Havey, Mayor of Stewiacke.

The medical profession extend sympathy to Dr. J. S. Munro of North Sydney in the loss of his father, Mr. George Munro, which occurred on December 10th, 1934, at his home, Belle Cote.

One of the oldest graduates of the Halifax Medical College, (1884), and one of the best known medical practitioners in the community Dr. John McC. Gourley, passed away at Dartmouth on December 11th, 1934. Dr. Gourley was born at Upper Stewiacke in 1854 and taught school for several years before studying medicine. After graduation he practised two or three years at Lord Northcliff's plant at Grand Falls, Newfoundland, from there moving to Sheet Harbour where he practised for over forty years.

Personal Interest Notes

The following editorial from the *Kentville Advertiser* expresses eminently the opinion of the Editors.

A Great Work.

One of the outstanding members of the medical profession of Nova Scotia was honored to-night when Dr. A. F. Miller, Medical Superintendent of the Nova Scotia Sanatorium, was guest of honor at a dinner tendered by staff members and patients of that institution. Himself a sufferer from Tuberculosis, Dr. Miller was a patient in a Sanatorium at Saranac after his graduation from the Medical School in Dalhousie University in the early 1900's. Becoming associated there with a brilliant worker in the struggle against Tuberculosis, Dr. Miller returned to Nova Scotia imbued with the idea of carrying on a warfare against this dread disease along its frontier in this province.

It was not an easy path that Dr. Miller trod in his effort to have set up an institution for the treatment of tuberculous patients. Discouragements came his way but his zeal was not to be denied and in the twenty-five years since his appointment as Medical Superintendent of the Nova Scotia Sanatorium in 1910, he has seen his dreams come true and from very modest beginnings has developed an institution which has decreased the mortality resulting from Tuberculosis from 1,000 to 478.

The Nova Scotia Sanatorium as it stands to-day is a monument more to him than to any other one person, but his own objective has not been reached. To know Dr. Miller and have a little insight into the real personal interest with which he carries on his work is indeed a pleasure. His knowledge of personal cases and the attention he gives to individuals coming under institutional care is sometimes amazing. He does not forget ex-patients when they leave and their welfare away from the Sanatorium is as much his interest as when they were resident there. He has done a remarkable work at the Sanatorium, but to him it is not complete.

The war on Tuberculosis is not entirely to cure those who suffer its ravages. The ideal state is to prevent the disease and it is that prevention which will be the culmination of Dr. Miller's dream of twenty-five years ago. It is not a result which one man alone can attain, but in Nova Scotia to-day it is a result which can be obtained if the brilliant effort and example of one indefatigable worker is not wasted. Dr. Miller has forced Tuberculosis back from its frontier into reserve trenches. Continued education will hold the enemy there and in years, that education will make less essential the institution which to-day is so necessary.

Dr. and Mrs. G. A. MacIntosh spent the holiday season in Sydney, the guests of Dr. MacIntosh's parents, Rev. Dr. John MacIntosh and Mrs. MacIntosh.

Dr. and Mrs. J. H. McDonald of Somerville, Mass. were recent visitors at the home of Dr. McDonald's mother, Mrs. J. K. McDonald of New Glasgow.

Dr. J. J. Carroll of Antigonish spent the New Year with friends in New York.

Dr. J. J. Roy of Sydney, who has been taking an enforced rest, part of which was spent in Montreal, is feeling much benefitted.

Dr. Sinclair Robertson of the Nova Scotia Sanatorium medical staff, Kentville, spent Christmas with his parents, Mr. and Mrs. A. R. Robertson, New Glasgow.



WHEN WINTER WINDS BLOW

January-February blizzards are "just around the corner," waiting to catch the unwary, those unfortunates whose low resistance to respiratory infections constitutes a never-ending problem for the physician.

Clinical experience does give us, however, sound reason to believe that vitamin A and D therapy builds up a definite resistance to the inroads of infection of the epithelial tract.

Alphamettes provide an excellent medium for vitamin A and D therapy. Each small 3-minim capsule exhibits the complete vitamin value of 3 teaspoonfuls of cod liver oil* and, being a simple defatted concentrate of cod liver oil, retains the same natural vitamin A and D ratio that long clinical experience has established as being sound and practical.

The usual prophylactic dose is 1 to 3 capsules daily.

*Conforming with the requirements of the U. S. P. X.,
(Revised 1934).

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CANADA

ALPHAMETTES

The Nova Scotia Branch of the British Medical Association thirty years ago had the following officers: President, Dr. C. D. Murray; Vice-President, Dr. W. H. Hattie; Secretary, Dr. E. D. Farrell; Treasurer, Dr. G. M. Campbell; Executive, Doctors Goodwin, Ross, Campbell, Mader, Hare and Hattie. Of all those Dr. A. I. Mader, is we believe, the sole survivor.

Poetry reflects the mind of the Poet!
Is that why we have so much Blank Verse?

Dr. M. E. McGarry, M.L.A., Margaree, was on the sick list for a part of December last.

Dr. Duncan MacMillan, Dal. '28, of Sheet Harbour, with Mrs. MacMillan and their little two-year old daughter, narrowly escaped serious results when fire was discovered in their home at an early hour Christmas morning. The saddest feature of the affair was the suffocation and death of Mr. St. Clair MacDonald, Provincial Game Inspector, a brother of Mrs. MacMillan. The fire occurred in the living room where he was sleeping. By a good bucket brigade the rest of the house and furniture was saved.

The wives of the Doctors in hospital towns are always active in aiding their local institutions. The proceeds of a pleasant social affair in New Waterford, a success largely through the efforts of Mesdames Hartigan, Morrison and Miller, will go to aid the recent renovation and remodeling of the third floor of their General Hospital.

Very Apt. "What does silence mean, Tommy?" asked the teacher. Said Tommy, "Please, teacher, it's what you don't hear when you listen."

Dr. V. H. and Mrs. Parker of Stellarton were visitors recently at the home of the Doctor's Mother, Mrs. W. F. Parker in Bridgetown.

Dr. William I. Morse of New York, formerly of Paradise, N. S., has recently issued another number of *The Chronicle*, in which he gives a most attractive description of an ideal summer spent in Nova Scotia. In April, 1935, he expects to publish, in two volumes, "Acadians in Nova," embracing a history of the province from 1555 to 1749. Much of the material for this work he obtained from the French Archives in Paris.

Physicians of all men, are most happy; whatever good success soever they have, the world proclaimeth; and what faults they commit the earth coverths. (Quarles).

Dr. John W. Dewis, so well known to the medical profession in Nova Scotia was born at Advocate, N. S. He was educated at Horton Academy, and completed two years in Arts at Acadia, when, like many other Nova Scotia young men, he had to go to work. To such purpose did he work at Boston that he graduated from Harvard Medical College in 1894. He is a noted consultant in Gastro-Engerology. His wife is also a Nova Scotian, formerly of Amherst.

Coramine

"Ciba"

INTERNAL MEDICINE: Collapse, failure of circulation during infectious diseases, chronic cardiac affections, asthma. Respiratory crises, traumatic shock.

SURGERY: Accidents during narcosis, collapse, post-operative respiratory and cardio-vascular crises; also to interrupt or regulate the duration and intensity of Evipan-sodium narcosis and basal anaesthesia.

GYNAECOLOGY AND OBSTETRICS: For the treatment of cardiac failure and nervous neuro-circulatory asthenia resulting from post-partum haemorrhage, asphyxia neonatorum.

FIRST AID PRACTICE: Poisoning by carbon monoxide and other gases, by lysol, narcotics and barbitone derivatives. Drowning, electric shock, etc.

DOSAGE. Subcutaneously, intramuscularly or intravenously: 1 to 2 ampoules of 1.7 c.c.

Orally: 25 to 50 drops in any liquid as often as necessary.

In severe poisoning, 5 to 15 c.c. may be given intravenously, the injection being made very slowly and with short pauses. The effect of the intravenous injection is considerably prolonged if an intramuscular injection is given immediately afterwards.

AMPOULES

LIQUID

CIBA COMPANY LIMITED - MONTREAL.

Nothing is more estimable than a physician who, having studied nature from his youth, knows the proportions of the human body, the diseases which assail it, the remedies which will benefit it, exercises his art with caution, and pays equal attention to the rich and the poor. (Voltaire).

Major General G. LaF. Foster, R.C.A.M.C., and Mrs. Foster, who have been living in Wolfville for the last two years, will reside in Halifax this winter.

Dr. T. F. Meahan of New Aberdeen, spent a few days of December at his former home in Bathurst, N.B.

Dr. G. Mack Geldert has been elected Controller for Ottawa for the third or fourth term. He is a native of Windsor, a son of Mr. and Mrs. Geldert, now resident in Paris, Ontario. From the Windsor Academy he went into the Canadian Bank of Commerce where he got his business training. When he completed his medical training he located in Ottawa where he became a specialist, and his business ability has also been recognized.

Dr. H. C. M. DeWolfe, Dal.' 24, who practised in Yarmouth for several years, is on the staff of the Massachusetts Health Department with office in the State House, Boston. He and Mrs. DeWolfe reside in Malden, Mass. Dr. R. E. Archibald, Dal. '25, is also engaged in health work and resides in Lynn, Mass.

Physician Wanted. A letter has been received from Mr. Fred W. Douglas, merchant of Salisbury, N. B., inquiring for a physician to take up practice there. Further information can be received from Mr. Douglas.

Dr. C. C. Archibald, native of Brookvale, Middle Musquodoboit, and former resident of Truro and Harmony, has leased the residence of the late Henry T. Walker, 12 Pleasant Street, Truro, and is opening professional offices on Inglis Street where the late Dr. Harris was formerly located.

Dr. and Mrs. R. Evatt Mathers of Halifax sailed on the Empress of Australia on January 15th on a lengthy cruise to the Mediterranean, South Africa, South America and the West Indies.

We apologize to Dr. J. J. Cameron of Antigonish for an error in his article "Forty-five years of Practice" published in the December issue. On page 618, line 9, the year "1899" should have read "1889."

Locum Tenens Wanted. Dr. W. W. Patton of Port Morien, N. S. wishes someone to take over his practice during the time he will spend at Halifax at the next session of the Provincial Legislature. This will probably be from the middle of February for a period of six to eight weeks. Any physician interested will secure information by corresponding directly with Dr. W. W. Patton, Port Morien, N. S.